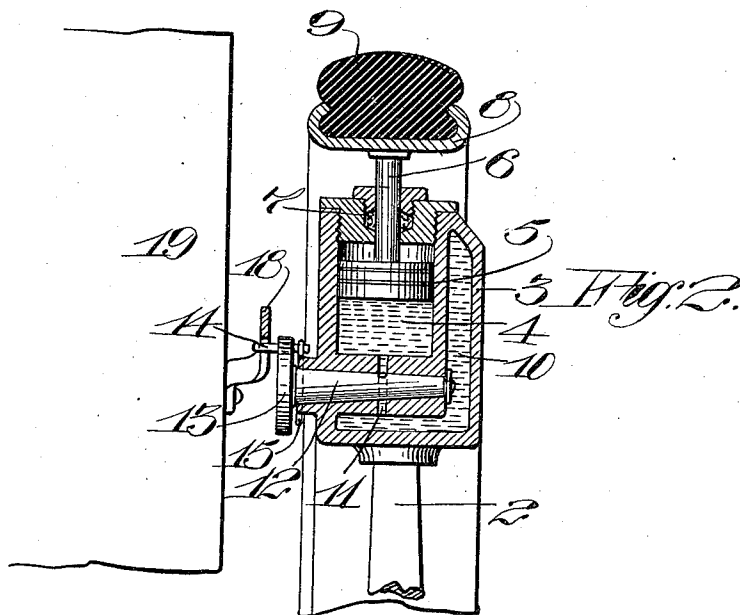
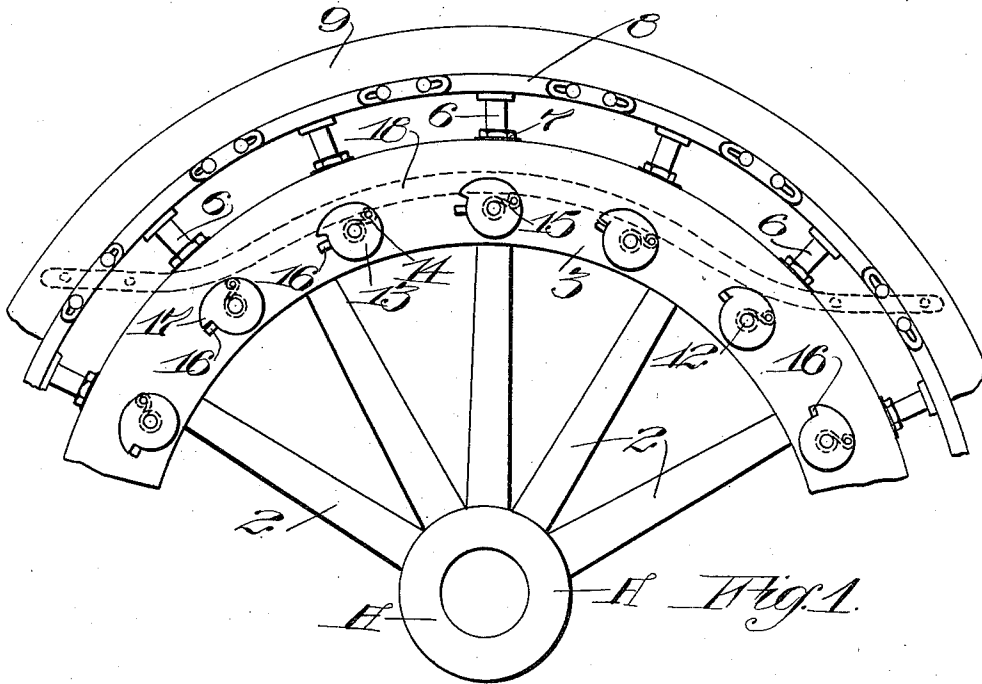


H. P. P. WEST.
CUSHION TREAD FOR VEHICLES.
APPLICATION FILED MAR. 28, 1912.

1,045,485.

Patented Nov. 26, 1912.



Witnesses:
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UNITED STATES PATENT OFFICE.

HENRY P. P. WEST, OF SAN FRANCISCO, CALIFORNIA.

CUSHION-TREAD FOR VEHICLES.

1,045,485.

Specification of Letters Patent.

Patented Nov. 26, 1912.

Application filed March 28, 1912. Serial No. 686,768.

To all whom it may concern:

Be it known that I, HENRY P. P. WEST, a citizen of the United States, residing at San Francisco, in the county of San Francisco and State of California, have invented new and useful Improvements in Cushion-Treads for Vehicles, of which the following is a specification.

This invention relates to hydro-pneumatic cushion wheels of the type in which the inner ends of the spokes are provided with pistons reciprocal in cylinders cast integral with the rim or felly.

The object of this invention is to produce a resilient or elastic wheel so constructed that the resiliency may be controlled by the flow of a liquid from one cylinder to another, the fluid flow to be regulated by suitably constructed valves located between the different cylinders.

The invention consists of the parts and the construction and combination of parts as hereinafter more fully described and claimed, having reference to the accompanying drawings, in which—

Figure 1 is a side elevation of the wheel partly broken away. Fig. 2 is a cross section of same.

Referring to the drawings, A is a hub provided with spokes 2, and a hollow rim 3; said rim carrying a series of radially disposed cylinders 4, in which are reciprocal pistons 5 and piston rods 6, extending through stuffing boxes 7. To the outer ends of the rods are attached links 8, which links are connected together and extend around the periphery of the wheel to form a rim for the reception of a resilient tire or tread 9.

A continuous annular chamber 10, designed to contain a suitable liquid, is formed in the rim 3 and connects with each of the cylinders 4 through valve controlled ports 11. The valves 12, controlling the ports 11 are of the conical type, and are designed to be automatically operated to vary the area of the port openings 11, as the wheel revolves. Mounted on the end of the valve stem is a disk 13, carrying a pin 14 projecting through the disk and engageable with a spring 15, which normally holds the valve in a predetermined adjusted position which is determined by the position of lugs

16, engageable with projections or lugs 17 on the disk. The opposite end of the pin is adapted to be actuated by a cam track 18, mounted on the vehicle body 19. The cam track 18 is so disposed adjacent the upper portion of the wheel, as shown in Fig. 1, and in such position that as the wheel revolves the pins 14 will be engaged by the cam to operate the valve to enlarge the area of the ports.

In operation the pistons 5 in the cylinders 4 at the lowermost portion of the wheel, will practically carry the weight of the vehicle, causing the pistons to force the liquid in the cylinders through the reduced ports 11, into the annular chamber 10 from which it is distributed into the various cylinders throughout the periphery of the wheel. The ports in the uppermost portion of the wheel, being of larger area than those of the lowermost portion of the wheel, having been opened by the turning of the valve caused by the engagement of the pin 14 with the cam track, will permit the free flow of the fluid from the chamber 10 into the cylinders 4 at this point to recharge these. It will thus be seen that when a cylinder again returns to the lower portion of the wheel it will be fully charged; the resiliency of the wheel being controlled by the area at the discharge ports 11, causing more or less resistance to the discharge of the liquid from the cylinder into the annular chamber 10.

Having thus described my invention, what I claim and desire to secure by Letters Patent is—

1. A hydro-pneumatic wheel comprising in combination an outer flexible flanged rim consisting of links fitted between the flanges of said rim, rods carried by the links of the outer flexible rim, pistons on said rods, an inner hollow felly, an annular reservoir and a plurality of cylinders in said hollow felly; said pistons adapted to reciprocate in the cylinders and valve means controlling the flow of a fluid between the cylinders and the reservoir.

2. A hydro-pneumatic wheel comprising in combination an outer flexible flanged rim consisting of links fitted between the flanges of said rim, rods carried by the links of the outer flexible rim, pistons on said rods, an

inner hollow felly an annular reservoir and
a plurality of cylinders in said hollow felly;
said pistons adapted to reciprocate in the
cylinders, means controlling the flow of a
5 fluid between the cylinders and the reservoir
and valve means automatically increasing
or decreasing the valve opening.

In testimony whereof I have hereunto set
my hand in the presence of two subscribing
witnesses.

HENRY P. P. WEST.

Witnesses:

JOHN H. HERRING,
DANIEL MCPHEE.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents,
Washington, D. C."
